What is claimed is:

[Claim 1] 1. A welding-type wire feeder comprising:

at least one electronically commutated motor (ECM) configured to deliver a consumable for a welding-type process; and

a controller configured to torque control the at least one ECM.

[Claim 2] 2. The welding-type wire feeder of claim 1 further comprising a commutation feedback loop configured to deliver commutation feedback from the at least one ECM to the controller.

[Claim 3] 3. The welding-type wire feeder of claim 1 wherein the controller is programmed to switch control of the at least one ECM between any one of torque control, voltage control, and current control.

[Claim 4] 4. The welding-type wire feeder of claim 1 wherein the controller is configured to control the at least one ECM to coordinate operation with a motor disposed within a welding-type torch to perform a push-pull consumable delivery process.

[Claim 5] 5. The welding-type wire feeder of claim 4 wherein the at least one ECM is controlled by the controller to push the consumable and the ECM disposed within the welding-type torch is controlled to pull the consumable.

[Claim 6] 6. The welding-type wire feeder of claim 4 wherein the motor disposed within the welding-type torch includes an ECM.

[Claim 7] 7. The welding-type wire feeder of claim 1 wherein the controller is configured to regulate torque of the at least one ECM to perform torque control to deliver the consumable for the welding-type process.

[Claim 8] 8. The welding-type wire feeder of claim 1 wherein the controller is configured to perform angular displacement control to regulate the at lease one ECM to perform the welding-type process.

[Claim 9] 9. The welding-type wire feeder of claim 1 further comprising a sensor configured to determine a rotational direction of the at least one ECM.

[Claim 10] 10. The welding-type wire feeder of claim 9 wherein the controller is configured to receive feedback from the sensor to control the at least one ECM to change operation from forward operation to reverse operation for a given period upon receiving a command to end delivery of the consumable for the welding-type process.

[Claim 11] 11. The welding-type wire feeder of claim 10 wherein reverse operation is performed for given period to remove the consumable a predetermined distance away from a workpiece.

[Claim 12] 12. The welding-type wire feeder of claim 1 wherein the welding-type process is a pulsed welding-type process.

[Claim 13] 13. The welding-type wire feeder of claim 12 wherein the sensor is a Hall effect sensor configured to detect electrical pulses generated by the at least one ECM to control the delivery of the consumable to control the pulsed welding-type process.

[Claim 14] 14. The welding-type wire feeder of claim 1 wherein the controller is further configured to control the at least one ECM according to at least one of a plurality of states.

[Claim 15] 15. The welding-type wire feeder of claim 14 wherein the states include a speed control state, a torque control state, and a pulsed control state.

[Claim 16] 16. The welding-type wire feeder of claim 14 further comprising a state controller configured to generate operating parameters corresponding to a current state and communicate the operating parameters to the controller to control the at least one ECM according to the operating parameters.

[Claim 17] 17. The welding-type wire feeder of claim 1 wherein the at least one ECM includes at least one of a brushless DC motor, a stepping motor, a switched reluctance motor, and a variable reluctance motor.

[Claim 18] 18. A method of delivering a consumable for a welding-type process comprising:

electronically commutating an ECM to deliver a consumable for a welding-type process;

monitoring feedback from a consumable delivery mechanism; and

automatically adjusting the electronic commutation in response to consumable delivery feedback to perform the welding-type process.

[Claim 19] 19. The method of claim 18 wherein delivery of a consumable includes at least one of a push operation and a pull operation.

[Claim 20] 20. The method of claim 18 further comprising receiving commutation feedback from the ECM to automatically adjust the electric commutation.

[Claim 21] 21. The method of claim 18 further comprising controlling a delivery speed of the consumable to control a pulsed welding-type process.

[Claim 22] 22. The method of claim 18 further comprising reversing the delivery of the consumable upon at least one of a break in the welding-type process and a completion of the welding-type process.

[Claim 23] 23. The method of claim 18 further comprising monitoring an angular displacement of a shaft of the ECM and regulating the electronic commutating to control the delivery of the consumable based on the angular displacement of the ECM shaft.

[Claim 24] 24. The method of claim 18 further comprising automatically detecting another ECM and torque controlling operation of the ECMs to perform a push-pull delivery of the consumable.

[Claim 25] 25. The method of claim 24 further comprising coordinating operation of the ECMs to perform at least one of a user-prompted acceleration, deceleration, and breaking.

[Claim 26] 26. The method of claim 24 further comprising monitoring user input and coordinating operation of the ECMs to perform a breaking operation including reversing delivery of the consumable away from a workpiece.

[Claim 27] 27. A welding-type apparatus comprising:

a wire feeder configured to deliver a welding-type consumable to perform a welding-type process;

a wire feeder ECM configured to drive the wire feeder according to at least one of a push configuration and a pull configuration; and

a motor control configured to control the torque of the wire feeder ECM.

[Claim 28] 28. The apparatus of claim 27 further comprising:

a welding-type torch configured to perform the welding-type process; and a welding-type torch ECM configured to receive the consumable from the wire feeder ECM and deliver the consumable to a workpiece.

[Claim 29] 29. The apparatus of claim 28 further comprising a controller configured to detect the welding-type torch ECM and automatically switch a control state from one of a voltage regulation state and a current regulation state to a torque regulation state.

[Claim 30] 30. The apparatus of claim 29 wherein the controller is further configured to coordinate control of the wire feeder ECM and welding-type torch ECM to perform a push-pull consumable delivery process.

[Claim 31] 31. The apparatus of claim 29 wherein the controller is configured to receive commutation feedback from the ECM.

[Claim 32] 32. The apparatus of claim 29 wherein the controller is configured to torque control the wire feeder ECM and welding-type torch ECM.

[Claim 33] 33. The apparatus of claim 28 wherein the welding-type process includes at least one of a metal inert gas (MIG) welding-type process, tungsten inert gas (TIG) welding-type process, a shielded metal arc welding (SMAW) welding-type process, an induction heating process, and a plasma-cutting process.